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| COATS & BENNETT, PLLC 1400 Crescent Green, Suite 300 Cary, NC 27518 | | | EXAMINER WEIER, ANTHONY J | |
| | | | ART UNIT 1794 | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/619,280

Applicant(s)

RIEKE ET AL.

Examiner

Anthony Weier

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-14 and 25-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-14 and 25-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 28, 29, and 33-37 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The original specification does not appear to provide support for the content of these new claims. Moreover, Applicant has not pointed out the support for same. This is a new matter rejection.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 11-14 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by DE 4300011, WO 98/04879, GB 424236, Welledits, JP 11-90401, or FR 2608380.

DE 4300011 discloses a system comprising a heat exchange device (wärmetauscher) wherein said device includes a spiral-shaped element therein in a tube where heating takes place, said system further having a processing facility

comprising a material handling element (e.g. entrance to device), said system being used to preheat granular material and therefore capable of processing a biomaterial stream. DE 4300011 also discloses embodiments wherein the spiral-shaped element takes up less than 50% of the width within the tube (see Figure 5).

FR 2608380 discloses a system comprising a heat exchange device wherein said device includes a spiral-shaped element therein in a tube where heating takes place, said system further having a processing facility comprising a material handling element (6a), said system being used to preheat granular material and therefore capable of processing a biomaterial stream. FR 2608380 also discloses said spiral-shaped element taking up just less than 50% of the width within the tube (see Figure 1).

WO 98/04879 discloses a system comprising a heat exchange device wherein said device includes a spiral-shaped element therein in a tube where heating takes place, said system further having a processing facility comprising a material handling element (hopper area prior to outlet 9), said system being used to granular material and therefore capable of processing a biomaterial stream. WO 98/04879 also discloses said spiral-shaped element taking up just less than 50% of the width within the tube (e.g. see section 11e).

Well edits discloses a system comprising a heat exchange device within a circular housing or tube (4) wherein said device includes a spiral-shaped element therein where heating takes place, said system further having a processing facility comprising a material handling element (pump and transfer tube; 20, 22) and, inherently, a fermentation unit, said system being used to heat biomaterial (beer mash).

Well edits also discloses said spiral-shaped element taking up less than 50% of the width within the tube housing (see Figure 3).

JP 11-90401 discloses a system comprising a heating device wherein said device includes a spiral-shaped element therein in a tube where heating takes place, said system further having a processing facility comprising at least a material handling element (3a), said system being used to heat provide fermentation of biomaterial. JP 11-90401 also discloses said spiral-shaped element taking up just less than 50% of the width within the tube (see Figure 3).

GB 424236 discloses a system comprising a heat exchange device wherein said device includes a spiral-shaped element therein in a tube where heating takes place, said system further having a processing facility comprising a material handling element (5), said system being used to heat granular material and therefore capable of processing a biomaterial stream. GB 424236 also discloses said spiral-shaped element taking up just less than 50% of the width within the tube (see Figure 1).

5. Claims 25-27 are rejected under 35 U.S.C. 102(b) as being anticipated by DE 4300011, GB 424236, Well edits, JP 11-90401, or FR 2608380.

Each reference further teaches tube configured to leave an open, unobstructed central opening within said tube; provides for transfer means into the heat exchanger, and includes a spiral element in the shape of a ribbon throughout the heat exchanger. See the Figures of each reference.

6. Claim 28 is rejected under 35 U.S.C. 102(b) as being anticipated by WO 98/04879, GB 424236, JP 11-90401, or FR 2608380.

Said references further disclose regions of the spiral shaped element that have different pitch density (see Figures).

7. Claims 33 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 98/04879 or JP 11-90401.

Said references further the spiral shaped element fixed relative to the heater tube and wherein same winds around an interior wall as called for in claim 34 (see Figures).

8. Claims 33-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Welledits et al

Welledits further discloses an outer shell with a heating medium (between elements 4 and 14; hot air; see Figure 4) and wherein the spiral shaped element is fixed relative to the heater tube.

9. Claims 11 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Mehta et al (heat transfer and Frictional Characteristics of Spirally Enhanced Tubes for Horizontal Condensers).

Mehta et al discloses a system comprising a heat exchange device wherein said device includes a spiral-shaped element in a tube where heating takes place wherein said spiral-shaped element taking up less than 50% of the width within the tube (see Figure 1), said system being used to heat a flowing material and therefore capable of processing a biomaterial stream.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over GB 424236, Welledits, or FR 2608380.

Claim 28 further calls for the spiral shaped element to have regions of differing pitch density. However, such modification would have been well within the purview of a skilled artisan, and, absent a showing of unexpected results, it would have been obvious to one having ordinary skill in the art at the time of the invention to have arrived at same as matter of preference in design.

12. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over DE 4300011, WO 98/04879, GB 424236, Welledits, JP 11-90401, or FR 2608380.

Claim 28 further calls for the spiral shaped element to have an aspect ratio of about 5-20. However, such modification would have been well within the purview of a skilled artisan, and, absent a showing of unexpected results, it would have been obvious to one having ordinary skill in the art at the time of the invention to have arrived at same as matter of preference in design.

13. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over DE 4300011, WO 98/04879, GB 424236, Welledits, JP 11-90401, or FR 2608380.

Claim 28 further calls for the spiral shaped element to have an aspect ratio of about 5-20. However, such modification would have been well within the purview of a skilled artisan, and, absent a showing of unexpected results, it would have been

obvious to one having ordinary skill in the art at the time of the invention to have arrived at same as matter of preference in design.

14. Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welledits.

Claims 31 and 32 disclose the additional presence of a variety of typical grain processing units, and, absent a showing of unexpected results, it would have been obvious to one having ordinary skill in the art at the time of the invention to have incorporated same as a matter of preference depending on the type and degree of grain processing desired.

Response to Arguments

15. Applicant's arguments filed 2/16/07 have been fully considered. De Nevers et al has been withdrawn as a reference as a result of Applicant's arguments and modification to the claims. However, arguments related to the other applied references are not persuasive and have been addressed in view of the rejections as set forth above.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Weier whose telephone number is 571-272-1409. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on 571-272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Anthony Weier
Primary Examiner
Art Unit 1761

Anthony Weier
October 29, 2007

A handwritten signature in black ink, appearing to read 'Anthony Weier', with a long horizontal flourish extending to the right.